UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/159,748	09/23/1998	GEOFF BARRETT		5513

7590 02/03/2003

DRISCOLL OR MORRIS
WOLF GREENFIELD & SACKS
FEDERAL RESERVE PLAZA
600 ATLANTIC AVENUE
BOSTON, MA 022102211

EXAMINER	
THOMSON, WILLIAM D	
ART UNIT	**PAPER NUMBER**
2123	

DATE MAILED: 02/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/159,748	BARRETT, GEOFF	
	Examiner	Art Unit	
	William D. Thomson	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/12/02* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Detailed Action

1. Claims 1-11 have been submitted with amendments for further examination. Claims 1-11 have been examined and rejected.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119 (a)-(d). A certified copy has been filed in the instant case. Foreign priority date is 09/29/97.

Preamble of the Claims

3. The preamble of the claims presented for examination have not been given patentable weight. Appropriate weight is given to limitations recited in the body of the claim that are needed for the purpose of antecedence. "A mere statement of purpose or intended use in the preamble of a claim need not be considered in finding anticipation; however, it must be considered if the language of a preamble is necessary to give meaning to the claim" *Diversitech Corp. v. Century Steps, Inc., 7 USPQ2d 1315 (Fed. Cir. 1988); In re Stencel, 4 USPQ2d 1071 (Fed. Cir. 1987)*

Objection to Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a processor adapted to arrange or arranging must be shown or the feature(s) cancelled from the claim(s). No

new matter should be entered. This has not been overcome since the figures do not clearly disclose a method or means by which the "adapting to arrange" or "arranging" are to be performed relative to the content providers.

Claim Rejections - 35 U.S.C. § 112

5 The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, "sifting", "adapting to arrange" and "arranging variables" have not provided in an enabled manner. A person of ordinary skill or a skilled artisan would [redacted] have to perform undo experimentations to enable these features. The means by which such "sifting", "adapting to arrange" and "arranging variables" steps or means might be implemented is not disclosed. These go to how the data is related to the processing instruction and the relative steps of BDD parsing and optimizing. When one goes to the specification the only teaching is a function that "consults a function graph by arranging variables" Never does the specification expressly teach how this consultation is performed with the graph by arranging the variables. Sifting algorithms are as well not taught in a full, clear, concise and exacting manner as to allow that person of ordinary skill level knowingly reduce the instant

claimed invention to practice without unduly experimenting on which method might be used and integrated to yield the invention.

Though methods may exist there is no teaching of how and which one may be integrated into and made operable with the instant invention with any type of adapting to arranging means. Engineer requires a level of exactness to allow that person of ordinary skill level to take the specification as filed and be able to implement an equivalent "sifting", "adapting" or "arranging" means that would work integral to the claimed embodiments. Examiner accepts that Applicant has something that performs a "sifting", "adapting" or "arranging" step/means in their end product, however, has not provided a specification that contains a description of the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to enable and yield the best mode without undue experimentation. That person would have to actually invent the "sifting", "adapting to arrange" or " arranging" means without a schematic, flow graph or even an engineering level of detail to direct them in a manner consistent with the claimed invention.

Response to Amendments and Arguments

7. Applicants' arguments and response with respect to claim 1-21 have been fully considered but are not in total persuasive. Examiner has entered the new Figure 8, with related amendments to the specification. These were present in one form or another in the original filing, however, they still merely provide a broad statement as to what the invention may do not how it performs the individual steps.

Examiner withdraws the rejections under 35 U.S.C. 101 since amendments have grounded the claims in the technological arts in hardware/software and further moved them beyond a mere series of mathematical constructs. However, the 112 1st rejection stands on a number of points. Though the Examiner has taken the statements on pages 8-9 of Applicant's response as admittance to relative degree of the prior art enablement that Applicant's are relying upon, it is important to include those details in an integrated manner such that guessing which combinations of prior teachings and that which is/was known or unknown in the prior art such that it would have bee clear to that person of ordinary skill level in the art. This was not the case in Applicant's specification and related recitations within the claims. To the extent that Applicants have now admitted to the fact that it is well known to adapt a processor to arrange and arranging variables it is clear. However no exemplary teaching has been provided such that one of ordinary skill level would indeed know which approach to take so that Applicant's invention might be reduced to the claimed invention.

To the issue of sifting, the examiner knows of many sifting algorithms and yes Ashar and Rudell are exemplary teachings of such, however, Applicants have not distinguished their claimed sifting algorithm over the prior art teachings. Applicants state that theirs differs, however, the specification does not direct or teach one of ordinary skill level in the art what method that might be. This is mere argument with no factual evidence of a difference. Therefore it is presumed that the sifting algorithm, in the broadest reasonable interpretation can be any such method. The specification is directed to using top down to produce labels and then sifting the variable in the selected

order to reduce the size of the binary decision diagram. The selected order to reduce has not been delineated in the independent claims. Claim 4 gets to the sifting using deepest location, and claim 5 recites using deepest location followed by sifting in reverse order to shallowest location. In response the Examiner has proved a new grounds of rejection based on Applicant's arguments and amendments.

Examiner respectfully, takes exception to Applicants assertion that he has provided characterizations or generalizations regarding the teaching of the cited prior art and related claim language that was in some manner improper. Examiner was forced to provide interpretations and related rejections to flush out in exacting terms what the Applicant is attempting to claims as their invention. Though the art is well developed there are a number of reasonable permutations and possible interpretations as to what and where the Applicant's claims where to indeed cover if allowed. The specification as filed was not a concise teaching of the Applicant's invention. With Applicant's amendments, admittance, and arguments the landscape has become clearer. Examiner is asserting Aho et al. a standard undergraduate and graduate level textbook on compilers, originally published Sept. 19, 1985, which teaches to every aspect of Applicant's claimed and taught invention. Based on Applicant's responses the only novelty lay in using that which is recited as top down and deepest location followed by sifting in reverse order to shallowest location. Entire book is used for the rejection, however, the sections entitled "4.4 Top Down Parsing", "4.5 Bottom-up Parsing", and "10.9 Data-flow Analysis of Structured Flow Graphs – Depth-First Search" to include forward and backward operations are of particular interest to these specific limitations. To the extent that the majority of the claimed steps are provided as known in the prior art or a minor teaching has been provided in the specification such that with a standard

teaching, such as Aho et al., those limitations might be known to the skilled artisan. Therefore, only limitations directed to "sifting", "adapting" or "arranging" means have been held as not enabled, see afore rejection. **THIS ACTION IS MADE FINAL.**

Claim Rejections - 35 U.S.C. § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being *clearly anticipated* by Aho et al. in its entirety.

Taking claim 3, for example, Aho et al. explicitly teaches:

A method of restructuring a BDD representative of hardware system, the binary decision diagram including a plurality of variables the method comprises

arranging variables of the BDD in a representation of a graph corresponding to the hardware system, the graph having a top, nodes, leaves, to generate labels for the nodes and leaves, the nodes being labeled with variables of the BDD and leaves being labeled with a set of functions, the set of functions labeling the leaves reachable from one of the nodes corresponding to the set of functions which depend on the variables labeling the one of the nodes;

traversing the graph from the top down to produce a list of the labels in a selected order; sifting the variables based on the selected order; and restructuring the

BDD based on the act of sifting variables. (pages 1-744, especially, "4.4 Top Down Parsing", "4.5 Bottom-up Parsing", and "10.9 Data-flow Analysis of Structured Flow Graphs – Depth-First Search" to include forward and backward operations)

As to claim 4, the method of claim 3, wherein the variables are sifted one-by-one to a deepest location is taught in Aho et al. (pages 1-744, especially, "4.4 Top Down Parsing", "4.5 Bottom-up Parsing", and "10.9 Data-flow Analysis of Structured Flow Graphs – Depth-First Search" to include forward and backward operations)

As to claim 5, the method of claim 3, wherein the variables are sifted one-by-one to a deepest location followed by sifting in reverse order to a shallowest location are taught in Aho et al. (pages 1-744, especially, "4.4 Top Down Parsing", "4.5 Bottom-up Parsing", and "10.9 Data-flow Analysis of Structured Flow Graphs – Depth-First Search" to include forward and backward operations)

Claims 1-2 and 6- 11 are rejected based on the same reasoning as claims 3-5, *supra.* Claims 1-2 and 6-11 recite the same limitations as claims 3-5 in equivalent apparatus and method steps as taught within Aho et al. (pages 1-744, especially, "4.4 Top Down Parsing", "4.5 Bottom-up Parsing", and "10.9 Data-flow Analysis of Structured Flow Graphs – Depth-First Search" to include forward and backward operations)

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and must be considered prior to responding to this FINAL ACTION.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Thomson whose telephone number is (703) 305-0022. The examiner can be usually reached between 9:30 a.m. - 4:00 p.m.

Monday thru Friday. Voice mail is checked throughout the day. Please leave a detailed message including the serial number.

Facsimile numbers are as follows:

Official: 703-746-7239

Draft: 703-746-7240

After Final: 703-746-7238

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Kevin Teska, can be reached on 704-305-9704.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is 703-305-3900.

William D. Thomson

Patent Examiner

A.U. 2123

January 22, 2003

HUGH JONES Ph.D.
PRIMARY PATENT EXAMINER
TECHNOLOGY CENTER 2100